National Institute of Environmental Health Sciences

Projection of economic impacts of climate change in sectors of Europe based on bottom up analysis: Human health

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Abstract:

This paper scopes a number of the health impacts of climate change in Europe (EU-27) quantitatively, using physical and monetary metrics. Temperature-related mortality effects, salmonellosis and coastal flooding-induced mental health impacts resulting from climate change are isolated from the effects of socio-economic change for the 2011-2040 and 2071-2100 time periods. The temperature-induced mortality effects of climate change include both positive and negative effects, for winter (cold) and summer (heat) effects, respectively, and have welfare costs (and benefits) of up to 100 billion Euro annually by the later time-period, though these are unevenly distributed across countries. The role of uncertainty in quantifying these effects is explored through sensitivity analysis on key parameters. This investigates climate model output, climate scenario, impact function, the existence and extent of acclimatisation, and the choice of physical and monetary metrics. While all of these lead to major differences in reported results, acclimatisation is particularly important in determining the size of the health impacts, and could influence the scale and form of public adaptation at the EU and national level. The welfare costs for salmonellosis from climate change are estimated at potentially several hundred million Euro annually by the period 2071-2100. Finally, a scoping assessment of the health costs of climate change from coastal flooding, focusing on mental health problems such as depression, are estimated at up to 1. 5 billion Euro annually by the period 2071-2100. © 2011 Springer Science+Business Media B.V.

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Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES)

Special Report on Emissions Scenarios (SRES) Scenario: SRES A2, SRES B2

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Temperature

Extreme Weather Event: Flooding

Temperature: Extreme Cold, Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease, Injury, Mental Health/Stress

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: Salmonellosis

Mental Health Effect/Stress: Stress Disorder

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Cost/Economic

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Elderly, Low Socioeconomic Status

Resource Type:

format or standard characteristic of resource

Research Article

Socioeconomic Scenario: SES scenarios

Timescale:

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content